L'invention concerne un procédé de coulée continue d'une bande mince (1) selon un procédé à deux cylindres. Une masse métallique en fusion (7) est coulée, à l'épaisseur de la bande (1) à couler, dans une fente de coulage (3) formée par deux laminages de coulée continue (2), donnant ainsi un bain en fusion (6). Les surfaces (11) des laminages de coulée continue (2) situées au-dessus du bain de fusion (6) sont rincées avec un gaz inerte ou un mélange de gaz inertes en fonction de leur état. Pour éviter des déformations thermiques locales, les surfaces (11) des laminages de coulée continue (2) sont observées sur toute leur longueur pour déceler les différents états locaux. En cas d'apparition de différents états locaux, le rinçage au gaz des surfaces (11) des laminages de coulée continue (2) est effectué de façon localement différenciée en fonction des différents états locaux sur la longueur des laminages de coulée continue (2).

(57) The invention relates to a method for the continuous casting of a thin strip (1) using the two-roll method. According to said method molten metal (7) is cast into a casting slit (3), which is formed by two casting rolls (2) and corresponds to the thickness of the strip (1) to be cast, resulting in the formation of a molten bath (6). The surfaces (11) of the casting rolls (2) located above the molten bath (6) are rinsed with an inert gas or an inert gas mixture in accordance with the state of the surfaces (11) of the casting rolls (2). To avoid local thermal deformations, the surfaces (11) of the casting rolls (2) are observed along their entire length so as to detect local variations in their state. When local variations in state are detected, the gas rinsing of the surfaces (11) of the casting rolls (2) is carried out such that it differs locally in accordance with local variations observed along the entire length of the casting rolls (2).
Abstract:

Process for Continuously Casting a Thin Strip as well as Arrangement for Carrying out the Process

In a process for continuously casting a thin strip (1) in a two-roll process, metal melt (7) is cast into a casting gap (3) formed by two casting rolls (2) in the thickness of the strip (1) to be cast while forming a melt bath (6) and the surfaces (11) of the casting rolls (2) above the melt bath (6) are swept with an inert gas or an inert gas mixture as a function of the condition of the surfaces (11) of the casting rolls (2).

In order to avoid local thermal deformations, the surfaces (11) of the casting rolls (2) are observed over their longitudinal extent with respect to locally different conditions and gas sweeping of the surfaces (11) of the casting rolls (2) in the event of locally different conditions is carried out in a locally different manner as a function of the conditions differing locally over the longitudinal extent of the casting rolls (2) (Fig. 1).
Process for Continuously Casting a Thin Strip as well as Arrangement for Carrying out the Process

The invention relates to a process for continuously casting a thin strip, in particular a steel strip, preferably having a thickness of less than 10 mm, in a two-roll process, wherein metal melt is cast into a casting gap formed by two casting rolls in the thickness of the strip to be cast while forming a melt bath and the surfaces of the casting rolls above the melt bath are swept with an inert gas or an inert gas mixture as a function of the condition of the surfaces of the casting rolls, as well as to an arrangement for carrying out the process.

When casting a thin strip in the two-roll process, the cross section of the strip is determined by the section of the casting rolls in the hot state. It is essential that the hot section exactly corresponds to the desired strip cross section, since the strip section can no longer be changed after the casting process, i.e. not even by means of a rolling process. The hot section of the casting rolls deviates considerably from the cold section due to the periodically occurring very high thermal loads exerted on the surfaces of the casting rolls. Thermal cambering will be caused, which, however, may be compensated for at least partially by concave rough-grinding of the casting rolls.

Since the thermal load exerted on the casting rolls in the casting process is, however, influenced by a plurality of parameters and, in addition, a strip caster should encompass a wide operating range (e.g. a casting speed range between 0.2 and 2.5 m/s, a strip thickness range between 1 and 10 mm, different rolling forces occurring on the casting rolls, different temperatures of the metal melt to be cast, different melt quantities such as, e.g., different steel grades
etc.), sufficient pre-profiling of the casting rolls by rough-grinding is not feasible. Rather, it is necessary to effect an on-line adjustment of the casting roll surfaces for adaptation to different operating points.

Such an on-line adjustment as described in the introduction is known, for instance, from AU-A-50 340/96. There, the surfaces of the casting rolls are observed by sensors coupled to a computer. The computer controls a gas feed to the casting rolls, wherein two different gases, i.e. nitrogen and argon, are fed to the casting rolls, and hence to the melt bath in different partial amounts depending on the condition of the surfaces of the casting rolls, in order to influence the heat transfer just above the bath level of the melt bath. The mixed gas thus formed is fed to the surfaces of the casting rolls in a manner distributed over the total longitudinal extent of the same. This is to avoid thermal cambering of the casting rolls and to safeguard a uniform thickness of the strip produced. As an alternative, another suggestion is to measure the thickness of the strip distributed over the width of the strip so as to be able to detect deviations from a rectangular cross section of the strip and compensate for the same by appropriate mixing ratios of the gases fed to the casting roll surfaces. As already mentioned, the heat transfer between the casting rolls and the metal melt may be decisively influenced by the different gas compositions, thus bringing about changes in the geometries of the casting rolls.

Internal research work in the field of two-roll casting has revealed that a satisfactory product cannot be obtained despite the above-described measures. There was observed the phenomenon that a roughness present as uniformly as possible over the total surface of the casting rolls is not maintained due to thermal deformation of the casting rolls and due to a slightly uneven solidification of the metal melt on the surface
of the casting rolls despite the supply of specifically adjusted gas mixtures, but that circumferentially oriented smooth sites not extending over the total longitudinal extent of the casting rolls occur. Thus, brighter, smoother sites are, for instance, formed on the circumference of the casting rolls. Since such smooth sites, due to their reduced roughness, cause a more rapid solidification of the metal melt and hence a better contact within the casting gap, the so-called "kissing point", which, in turn, induces higher local specific rolling forces, the smoothness of the casting rolls in these areas which are already smoother is intensified. This causes a building-up process and hence an ever increasing deterioration of the strip quality, which cannot be obviated by the above-described measures, i.e. a change in the mixing ratio of the gas fed near the bath level.

The invention aims at avoiding these disadvantages and difficulties and has as its object to provide a process, as well as an arrangement for carrying out the process, of the initially defined kind, which allow for the production of a strip having an ideal cross section even with strongly varying operating states. The occurrence of thermal deformations of the casting rolls due to local smooth sites is to be avoided, in particular.

In accordance with the invention, this object is achieved in that gas sweeping of the surfaces of the casting rolls is carried out over the longitudinal extent of the casting rolls in a locally different manner.

A preferred embodiment is characterized in that the surfaces of the casting rolls are observed over their longitudinal extent with respect to locally different conditions and in that gas sweeping of the surfaces of
the casting rolls is carried out as a function of what has been observed.

Preferably, locally different gas sweeping is carried out with locally different gas compositions.

Locally different gas sweeping may, however, also be carried out with locally different gas amounts and/or with locally different gas pressures.

Preferably, locally different surface roughness conditions of the casting rolls are observed.

According to another embodiment, locally different surface reflection property conditions of the casting rolls are observed.

It is, however, also possible to observe locally different discolorations of the surfaces of the casting rolls.

Simple realization of the process is feasible if the surfaces of the casting rolls in the direction of their longitudinal extent are divided into consecutively arranged zones and each zone is observed with respect to the condition of the surfaces, and locally different gas sweeping is effected in zones, i.e. by gas sweeping that is uniform and constant within each zone, wherein at least three adjacently located zones and up to 40 adjacently located zones are preferably formed.

A preferred embodiment is characterized in that the observation of the surfaces of the casting rolls is carried out by receiving electromagnetic waves emitted and/or reflected from the surfaces, in particular in the range of visible light and/or in the range of heat radiation.
According to another embodiment of the invention, the observation of the surfaces of the casting rolls is effected indirectly by observing the cast strip over its width after the emergence of the strip from the casting gap, wherein, expediently, at least one surface of the strip is observed over its width immediately after the emergence of the strip from the casting gap and wherein, preferably, electromagnetic waves emitted and/or reflected from the surface of the strip, in particular in the range of visible light and/or in the range of heat radiation, are received.

Preferably, gas sweeping is carried out at a pressure on the gas outlet openings of at least 1.05 to a maximum of 2 bar and, preferably, at least 1.5 bar, wherein gas sweeping is expediently carried out at a gas outlet speed on the gas outlet openings of at least 0.2 m/s and, preferably, at least 1.5 m/s.

An arrangement for continuously casting a thin strip by applying the process, comprising a continuous casting mould formed by two casting rolls defining a casting gap, wherein the width of the casting gap corresponds to the thickness of the strip to be cast and a melt bath receptacle covered by a lid is formed between the casting rolls above the casting gap, a gas feeding device feeding an inert gas to the casting rolls and having at least one gas outlet opening just above the melt bath present between the casting rolls, a device for observing the surfaces of the casting rolls and a control unit for influencing the gas feed to the casting rolls as a function of the condition of the casting roll surfaces is characterized in that several gas feeding devices are provided, wherein each gas feeding device is associated with a partial surface area of a casting roll and each partial surface area is feedable with gas by means of the associated gas feeding device as a function of an observed value.
allocated to said partial surface area to said partial surface area [sic] by the control unit.

Preferably, each gas feeding device comprises several closely adjacent gas outlet openings.

A preferred embodiment is characterized in that the gas feeding devices are connected to two or more gas reservoirs each containing a different gas via gas ducts equipped with throttle or shut-off members, wherein the gas ducts of each gas feeding device open into a mixing device, preferably a mixing chamber, associated with the gas feeding device and from which in each case at least one gas feeding duct leads to the gas outlet opening(s) associated with the gas feeding device.

Expediently, the devices for observing the surfaces of the casting rolls are formed by sensors directed towards the surfaces of the casting rolls.

For a particularly thorough observation of the surfaces of the casting rolls, a profile sensor is provided as the sensor for each of the casting rolls for the purpose of an integral observation of the surfaces of the casting rolls over their longitudinal extent, preferably over their total longitudinal extent.

It is also possible to observe the surfaces of the casting rolls indirectly, i.e. via the cast strip, wherein the devices for observing the surfaces of the casting rolls are formed by sensors directed towards at least one of the surfaces of the cast strip.

According to another preferred embodiment, two or more, preferably at least three, devices for observing the surfaces of the casting rolls are distributed over the longitudinal extent of the casting rolls, each of said
devices being separately coupled with a respective gas feeding device via a control unit.

Preferably, the axes of the gas outlet openings are oriented in the circumferential direction towards the surfaces of the casting rolls within a range of between +60° and -60° and, preferably, between +20° and -30°.

A preferred embodiment is characterized in that the surfaces of the casting rolls have a roughness of more than 4 µm and, preferably, more than 8 µm.

According to a further preferred embodiment, the surfaces of the casting rolls are provided with dimples whose depths are between 10 and 100 µm and whose diameters are between 0.2 and 1.0 mm, dimples advantageously contacting one another, preferably 5 to 20% of the dimples.

Good gas sweeping is ensured if more than 20% of the dimples contact one another.

In the following text, the invention is explained in more detail by way of two exemplary embodiments schematically illustrated in the drawing. Fig. 1 shows a side view of an arrangement according to the invention for continuously casting a thin strip according to a first embodiment. Fig. 2 illustrates a detail from this Fig. 1, and Fig. 3 is a top view in the direction of the arrow III of Fig. 1. Fig. 4 is a diagram illustrating the gas sweeping of individual circumferential zones.

A continuous casting mould formed by two casting rolls 2 arranged adjacent and parallel to one another serves to cast a thin strip 1, in particular a steel strip having a thickness of between 1 and 10 mm. The casting rolls 2 form a casting gap 3, the so-called "kissing point", on which the strip 1 emerges from the
continuous casting mould. Above the casting gap 3, there is formed a space 4 which is upwardly screened by a cover plate 5 forming a cover and which serves to receive a melt bath 6. The metal melt 7 is supplied via an opening 8 of the cover, through which an immersed tube projects into the melt bath 6 as far as to below the bath level 9. The casting rolls 2 are provided with an internal cooling not illustrated. Laterally of the casting rolls 2, side plates 10 are provided for sealing the space 4 receiving the melt bath 6.

A strand shell 12 forms on the surfaces 11 of the casting rolls 2, said strand shells being united to form a strip 1 in the casting gap 3, i.e. on the kissing point. For the optimum formation of a strip 1 with an approximately uniform thickness - preferably with a slight curvature conforming to standards - the presence in the casting gap 3 of a specific rolling force distribution in rectangular form is essential.

The cover plate 5 is arranged in such a manner that a gap 13 of slight width is provided between the cover plate and the surfaces 11 of the casting rolls 2, which gap is externally sealed relative to the surfaces 11 of the two casting rolls 2 by means of an optionally resilient sealing lip 14, a labyrinth seal, etc. in order to prevent air from getting in. The edge of the cover plate 5 that is directed towards the casting rolls 2 is adapted in each case to the surfaces 11 of the casting rolls 2 so as to form a gap 13 having an approximately constant width. Inert gas is fed via this gap 13 by means of gas feeding ducts 15 fastened to the cover plate 5 by means of quick couplings 16, one quick coupling 16 advantageously being provided for two or more gas feeding ducts 15 at a time. What is important is a tight and precise connection, which may also be in the form of a butt joint, since the gas pressures in the individual gas feeding ducts 15 need not be identical. Bores 17 (which could also be slits) are
provided in the cover plate as an extension of the gas feeding ducts 15 and, via a gas outlet opening 18, open into the gap 13 between the cover plate and the respective casting roll 2. These bores 17 may also open out at the lower end of the gap 13 in the already horizontal edge region of the cover plate 5. The diameters or gap widths of the gas outlet openings 18 are smaller than 5 mm and, preferably, smaller than 3 mm.

The surfaces 11 of the casting rolls 2 are swept with an inert gas as a function of their condition, to which end the surfaces 11 of the casting rolls 2 are provided by means of [sic] a device 19 for observing them. According to the exemplary embodiment illustrated, a profile sensor 19 is directed in each case towards a surface 11 of a casting roll 2, measuring a temperature profile integrally over the longitudinal extent of each casting roll 2. The profile sensor 19 is coupled with a computer and control unit 20 in such a manner that temperature values or temperature mean values may each be allocated to adjacently located partial surface areas a, b, c, ..., i.e. individual adjacent circumferential zones a, b, c, ... distributed over the longitudinal extent of the casting rolls 2.

The profile sensor 19 could also be replaced with a radiation sensor for detecting smooth sites on the surfaces 11 of the casting rolls 2.

In order to be able to influence, by means of inert gas, individual zones of the adjacently located circumferential zones a, b, c, ... of each casting roll 2 separately and independently of one another, a plurality of gas feeding devices 21 is provided, according to the exemplary embodiment illustrated, each gas feeding device 21 being allocated to a circumferential zone a, b, c, ... of a casting roll 2.
Compressed gas reservoirs 22 for different gases are provided for gas sweeping; for instance, three compressed gas reservoirs 22 according to the exemplary embodiment illustrated, wherein each of the compressed gas reservoirs 22 is filled with a specific gas, e.g. one with nitrogen, one with argon and one with helium. From each of these compressed gas reservoirs 22, gas ducts 24 lead to a mixing chamber 23 associated with in each case one of the circumferential zones a, b, c, ..., wherein a specific gas composition formed from one or more of the gases contained in the compressed gas reservoirs 22 may be set in each of the mixing chambers 23 by means of throttle and shut-off members 25 installed in the gas ducts 24. These throttle and shut-off members 25 are coupled with the controller 20 and are activated by the same such that a specific gas composition in accordance with the temperature profile present over the longitudinal extent of each casting roll 2 may be set for each mixing chamber 23 and hence for each of the circumferential zones a, b, c, .... The set values to be selected are determined by the controller 20 on the basis of the temperature profiles detected by the respective sensor 19.

A gas feeding duct 15 leads from each of the mixing chambers 23 to a gas outlet opening 18 provided on the edge of the cover plate 5, whereby the surfaces 11 of the casting rolls 2 may each be acted upon by different gas compositions, i.e. locally different gas mixtures - viewed in the longitudinal direction of the casting rolls 2 - in a circumferential-zone-related manner. It is also possible to combine several adjacently located gas outlet openings 18 (e.g., in the form of bores) to form a group and to feed them from a single gas feeding duct 15, whereby wider circumferential zones a, b, c, ... are formed, i.e. larger surface areas of the surfaces 11 are each supplied with a gas mixture. Hence it results that a gas feeding device for feeding gas to a circumferential zone a, b, c, ... is formed from gas
ducts 24 (their number corresponding to the number of compressed gas reservoirs 22), throttle and shut-off members 25, a mixing chamber 23, a gas feeding duct 15 and at least one gas outlet opening 18.

The incoming gas should have impact pressures of at least 1.05 bar and, preferably, more than 1.5 bar up to 2 bar, wherein the axes of the gas outlet openings 18 may be substantially perpendicular to the casting roll surface, yet are inclined in, or opposite to, the direction of movement of the roll surface, to be precise in the range of ± 60°. The choice of the widths of the circumferential zones a, b, c, ... depends on the possible susceptibility to failures of the casting process, which, in turn, is largely a function of the process parameters.

According to another embodiment of the invention, the surfaces 11 of the casting rolls 2 are not directly observed, but a conclusion is drawn as to the conditions of the surfaces 11 of the casting rolls 2 from a direct observation of one of the surfaces 26, or both of the surfaces 26, of the strip 1. Consequently, the sensors 19 in this embodiment are directed towards the surfaces 26 of the strip 1, i.e. as immediately as possible after the emergence of the strip 1 from the casting gap 3, as indicated in Fig. 1 by dot-and-dash lines.

The invention is not limited to the exemplary embodiments depicted in the drawing, but may be modified in various respects. It is, for instance, possible to achieve the object underlying the invention by observing the local surface roughness of the casting rolls 2 instead of measuring the locally occurring temperature on the casting roll surfaces 11. Conclusions may also be drawn from observing the surface reflection properties of the casting rolls 2, or of the strip 1, by means of image recognition
systems, or locally different discolorations of the surfaces of the casting rolls 2 may be observed and used for selecting the gas composition to be swept towards the circumferential zones.

The surfaces 11 of the casting rolls 2 may also be influenced by additionally adjusting locally different gas amounts and/or locally different gas pressures instead of the local variation of the gas composition.

Fig. 4 represents schematically in diagram form the different feeds of different gas compositions A, B, C, ... to circumferential zones a, b, c, .... The individual adjacently arranged circumferential zones a, b, c, ... are plotted on the abscissa of the diagram. In sum, they correspond to the length of a casting roll 11. In the direction of the ordinate, the temperature values allocated to the individual circumferential zones a, b, c, ... are plotted, a temperature profile according to line 27 resulting from a very fine measurement. In addition, gas quantity values with which the individual circumferential zones a, b, c, ... are swept per time unit are plotted in the ordinate direction. References A, B, C, ... relate to different gas compositions such as may be formed by mixing the different gases contained in the compressed gas reservoirs 22. It is apparent that each temperature mean value of a circumferential zone a, b, c, ... (the mean values being indicated by broken lines) is allocated a defined gas composition and a defined gas amount to act on the circumferential zones a, b, c, ....

The invention is based on the idea that local influencing of a partial surface of the overall surface 11 of a casting roll 2 is possible by means of locally differently fed gas mixtures or gas amounts when feeding these gas mixtures just above the melt bath level 9. By way of experiments, it has been shown that
different gas mixtures inducing different solidification rates may be introduced even into closely adjacent regions, i.e. even into directly adjacent regions of the melt bath level 9 while, nevertheless, it is possible to exert different influences on adjacently located surface zones or circumferential zones a, b, c, ... of the casting rolls 2, thereby preventing the surfaces 11 of the casting rolls 2 from becoming non-uniform. As a result, the surfaces 11 of the casting rolls 2 will require repair or replacement only after considerably longer casting sequences or substantially higher product tonnages than has been the case until now.

By way of an experiment it has been shown that the solidification speed may be kept lower by up to 30% when using 100% argon than with the use of 100% helium. Thus, it was found that zones on the surfaces 11 of the casting rolls 2 exhibiting red-brownish discolorations or stains could be removed again by increasing the supply of helium, which considerably increases the local solidification rate; the red-brown coloration fades or disappears. Furthermore, it was found that in regions of glossy stains the solidification rate can be reduced by increasing the argon feed, thereby causing the glossy stains to disappear again. In general, varying casting roll surface conditions over the longitudinal extent of the casting rolls 2 are eliminated by the process according to the invention and the scattering range of the surface quality differences during, or on account of, the casting procedure does not increase, but heat transfer in the event of local changes to the surfaces is influenced by a change in the locally applied gas mixture in such a manner that these changes to the surface do not increase, but decline again. By surface quality, its roughness, optical reflection properties, discolorations, stains, or the presence of striae or dimples, for example, are to be understood.
In accordance with the invention, the solidification structure, in particular the central globulitic-dentic solidification structure, of the strip 1 produced will become more uniform over the total width, on the one hand, and reconditioning (rendering the surfaces 11 of the casting rolls 2 uniform) will be required only after a larger number of casts, on the other hand. Thus, not only the service life of the surface layer, but also, in particular, the service life of the casting rolls 2 as a whole will be markedly increased.
Claims:

1. Process for continuously casting a thin strip (1), in particular a steel strip, preferably having a thickness of less than 10 mm, in a two-roll process, wherein metal melt (7) is cast into a casting gap (3) formed by two casting rolls (2) in the thickness of the strip (1) to be cast while forming a melt bath (6) and the surfaces (11) of the casting rolls (2) above the melt bath (6) are swept with an inert gas or an inert gas mixture, characterized in that gas sweeping of the surfaces (11) of the casting rolls (2) is carried out over the longitudinal extent of the casting rolls (2) in a locally different manner.

2. Process according to Claim 1, characterized in that the surfaces (11) of the casting rolls (2) are observed over their longitudinal extent with respect to locally different conditions and in that gas sweeping of the surfaces (11) of the casting rolls (2) is carried out as a function of what has been observed.

3. Process according to Claim 1 or 2, characterized in that locally different gas sweeping is carried out with locally different gas compositions.

4. Process according to one or more of Claims 1 to 3, characterized in that locally different gas sweeping is carried out with locally different gas amounts.

5. Process according to one or more of Claims 1 to 4, characterized in that locally different gas sweeping is carried out with locally different gas pressures.

6. Process according to one or more of Claims 1 to 5, characterized in that locally different surface roughness conditions of the casting rolls (2) are observed.
7. Process according to one or more of Claims 1 to 6, characterized in that locally different surface reflection property conditions of the casting rolls (2) are observed.

8. Process according to one or more of Claims 1 to 7, characterized in that locally different discolorations of the surfaces (11) of the casting rolls (2) are observed.

9. Process according to one or more of Claims 1 to 8, characterized in that the surfaces (11) of the casting rolls (2) in the direction of their longitudinal extent are divided into consecutively arranged zones (a, b, c, ...) and in that each zone (a, b, c, ...) is observed with respect to the condition of the surfaces (11), and in that locally different gas sweeping is effected in zones, i.e. by gas sweeping that is uniform and constant within each zone (a, b, c, ...).

10. Process according to Claim 9, characterized in that at least three adjacent zones (a, b, c, ...) are formed.

11. Process according to Claim 9, characterized in that up to 40 adjacent zones (a, b, c, ...) are formed.

12. Process according to one or more of Claims 1 to 11, characterized in that the observation of the surfaces (11) of the casting rolls (2) is carried out by receiving electromagnetic waves emitted and/or reflected from the surfaces (11), in particular in the range of visible light and/or in the range of heat radiation.

13. Process according to one or more of Claims 1 to 12, characterized in that the observation of the surfaces (11) of the casting rolls (2) is effected indirectly by
observing the cast strip (1) over its width after the emergence of the strip (1) from the casting gap (3).

14. Process according to Claim 13, characterized in that at least one surface (26) of the strip (1) is observed over its width immediately after the emergence of the strip (1) from the casting gap (3), wherein electromagnetic waves emitted and/or reflected from the surface (26) of the strip (1), in particular in the range of visible light and/or in the range of heat radiation, are received.

15. Process according to one or more of Claims 1 to 14, characterized in that gas sweeping is carried out at a pressure on the gas outlet openings (18) of at least 1.05 to a maximum of 2 bar and, preferably, at least 1.5 bar.

16. Process according to one or more of Claims 1 to 15, characterized in that gas sweeping is carried out at a gas outlet speed on the gas outlet openings (18) of at least 0.2 m/s and, preferably, at least 1.5 m/s.

17. Arrangement for continuously casting a thin strip (1) by applying the process according to one or more of claims 1 to 16, comprising a continuous casting mould formed by two casting rolls (2) defining a casting gap (3), wherein the width of the casting gap (3) corresponds to the thickness of the strip (1) to be cast and a melt bath receptacle (4) covered by a lid (5) is formed between the casting rolls (2) above the casting gap (3), a gas feeding device (21) feeding an inert gas to the casting rolls (2) and having at least one gas outlet opening (18) just above the melt bath (6) present between the casting rolls (2), and a control unit (20) for influencing the gas feed to the casting rolls (2), characterized in that several gas feeding devices (21) are provided, wherein each gas feeding device (21) is associated with a partial
surface area (a, b, c, ...) of a casting roll (2) and each partial surface area (a, b, c, ...) is feedable with gas by means of the associated gas feeding device (21) as a function of a value allocated to said partial surface area (a, b, c, ...) [sic] by the control unit (20).

18. Arrangement according to Claim 17, characterized in that a device (19) for observing partial surface areas (a, b, c, ...) of the surfaces (11) of the casting rolls (2) is provided, which is coupled with the control unit (19) [sic].

19. Arrangement according to Claim 17 or 18, characterized in that each gas feeding device (21) comprises several closely adjacent gas outlet openings (18).

20. Arrangement according to one or more of Claims 17 to 19, characterized in that the gas feeding devices (21) are connected to two or more gas reservoirs (22) each containing a different gas via gas ducts (24) equipped with throttle or shut-off members (25), wherein the gas ducts (24) of each gas feeding device (21) open into a mixing device (23), preferably a mixing chamber (23), associated with the gas feeding device (21) and from which at least one gas feeding duct in each case leads to the gas outlet opening(s) (18) associated with the gas feeding device (21).

21. Arrangement according to one or more of Claims 17 to 20, characterized in that the devices for observing the surfaces (11) of the casting rolls (2) are formed by sensors (19) directed towards the surfaces (11) of the casting rolls (2).

22. Arrangement according to Claim 21, characterized in that a profile sensor (19) is provided as the sensors for each of the casting rolls (2) for the purpose of an
integral observation of the surfaces (11) of the casting rolls (2) over their longitudinal extent, preferably over their total longitudinal extent.

23. Arrangement according to one or more of Claims 17 to 22, characterized in that the devices for observing the surfaces (11) of the casting rolls (2) are formed by sensors (19) directed towards at least one of the surfaces (26) of the cast strip (1).

24. Arrangement according to one or more of Claims 17 to 23, characterized in that two or more, preferably at least three, devices (19) for observing the surfaces (11) of the casting rolls (2) are distributed over the longitudinal extent of the casting rolls (2), each of said devices being separately coupled with a respective gas feeding device (21) via a control unit (20).

25. Arrangement according to one or more of Claims 17 to 24, characterized in that the axes of the gas outlet openings (18) are oriented in the circumferential direction towards the surfaces (11) of the casting rolls (2) at an angle $\alpha$ with a range of between $+60^\circ$ and $-60^\circ$ and, preferably, between $+20^\circ$ and $-30^\circ$.

26. Arrangement according to one or more of Claims 17 to 25, characterized in that the surfaces (11) of the casting rolls (2) have a roughness of more than 4 $\mu$m and, preferably, more than 8 $\mu$m.

27. Arrangement according to one or more of Claims 17 to 26, characterized in that the surfaces (11) of the casting rolls (2) are provided with dimples whose depths are between 10 and 100 $\mu$m and whose diameters are between 0.2 and 1.0 mm.

28. Arrangement according to Claim 27, characterized in that dimples contact one another, preferably 5 to 20% of the dimples.
29. Arrangement according to Claim 28, characterized in that more than 20% of the dimples contact one another.