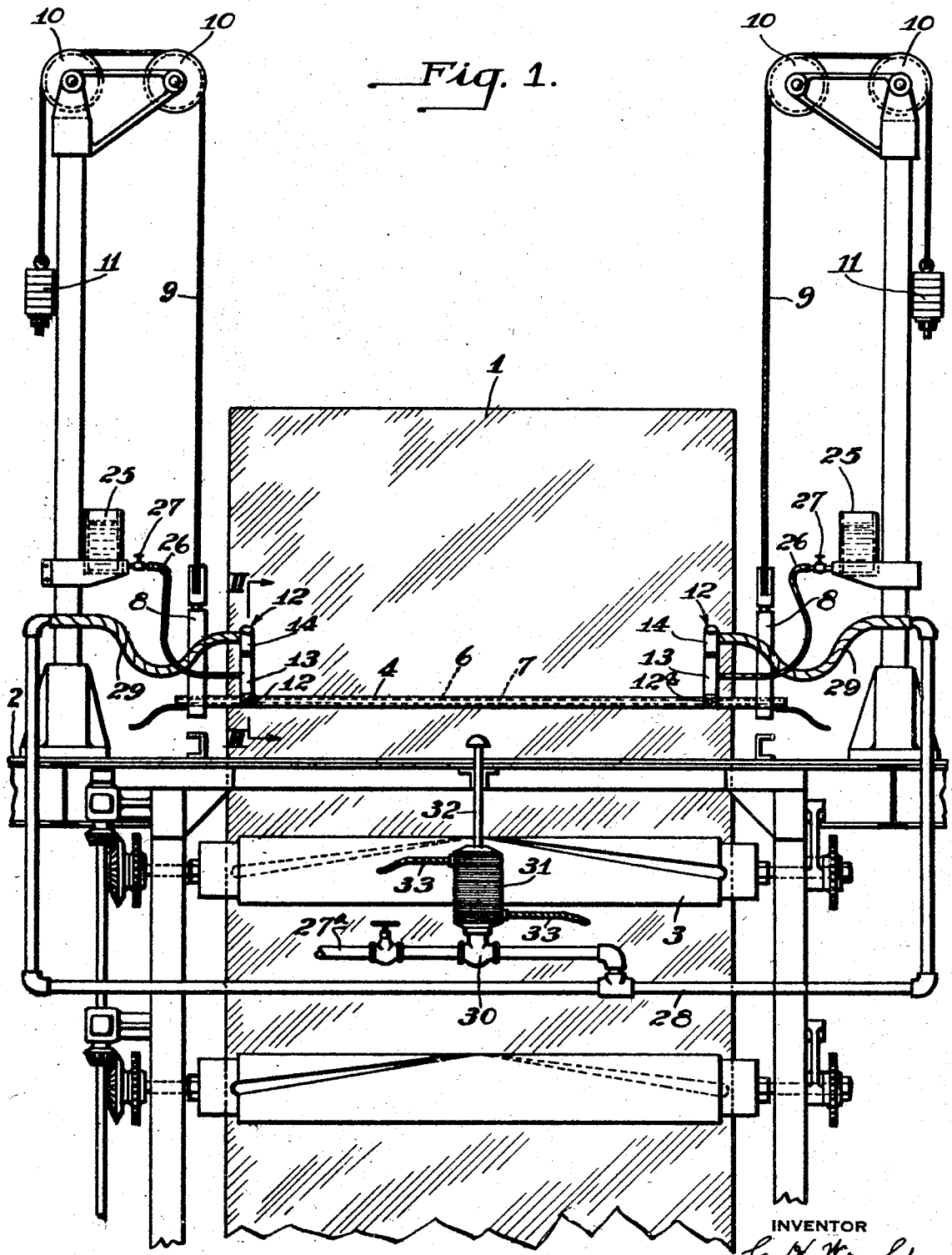
June 24, 1930. C. H. WRIGHT 1,765,814

APPARATUS FOR SEPARATING GLASS SHEETS

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Fig. 1.



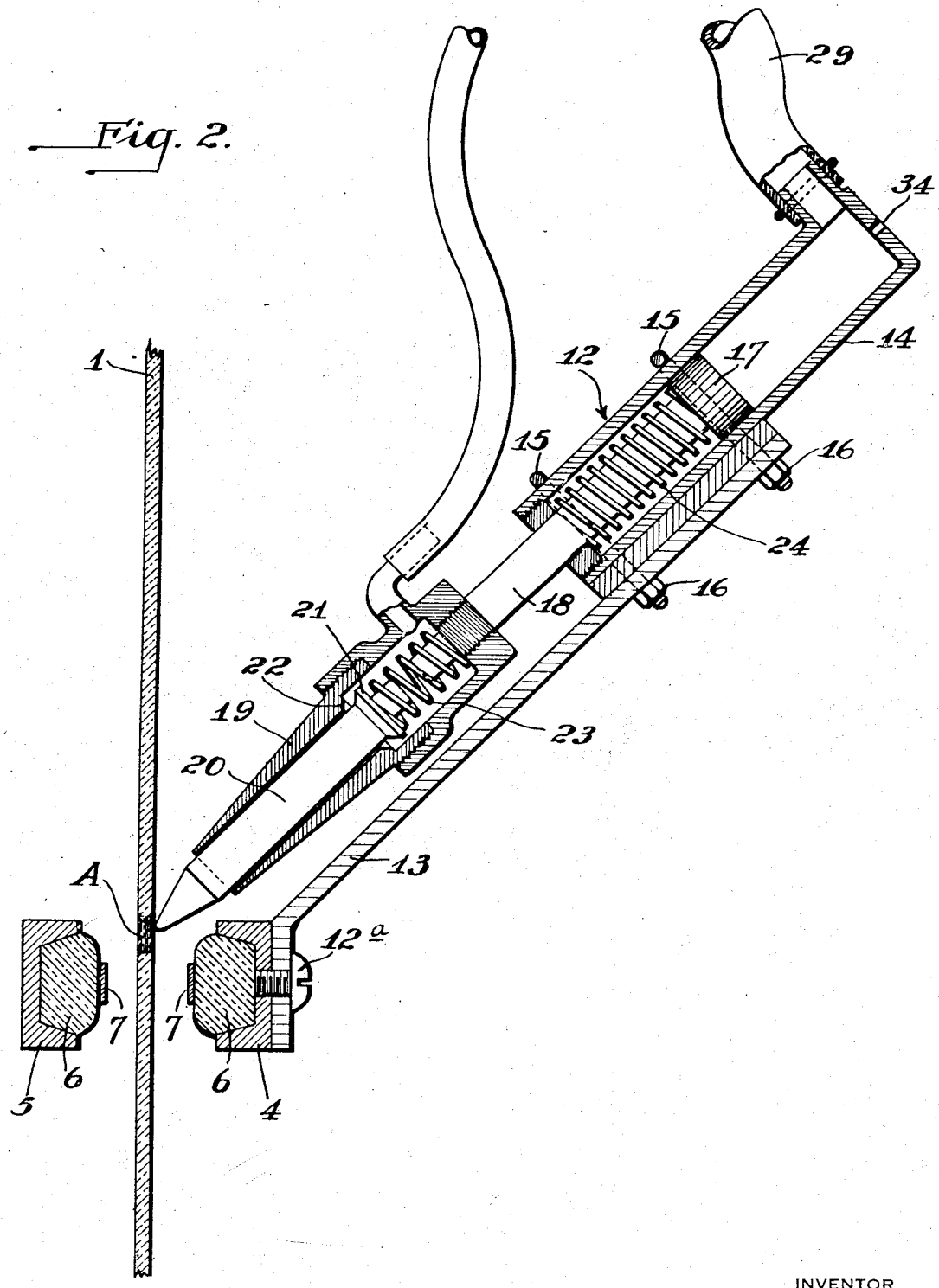
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Fig. 2.



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Patented June 24, 1930

1,765,814

UNITED STATES PATENT OFFICE

CHARLES H. WRIGHT, OF MOUNT VERNON, OHIO, ASSIGNOR TO PITTSBURGH PLATE GLASS COMPANY, A CORPORATION OF PENNSYLVANIA

APPARATUS FOR SEPARATING GLASS SHEETS

Application filed August 30, 1928. Serial No. 302,997.

The invention relates to apparatus for cracking off or separating glass sheets or sections from a continuously formed ribbon of glass, such as is produced in the manufacture of sheet glass by the Slingluff, Fourcault or Colburn processes. It has for its objects the provision of improved means for applying a cooling agent to the line of heating, as produced by the electrically heated ribbons employed in the Slingluff cracking off apparatus of Patent No. 1,373,533. A further object is the provision of means which may be operated either automatically at fixed intervals, or by the foot of the operator leaving his hands free to support the glass as soon as it is cracked off. One embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a front elevation of the apparatus. And Fig. 2 is an enlarged detail section on the line II—II of Fig. 1.

Referring to the drawings, 1 is the upper portion of a continuously formed glass ribbon or sheet produced by a machine of the Fourcault or Slingluff type located beneath the floor 2, the upper two rolls 3, 3 only of the set by means of which the sheet is moved up being shown. Extending transversely of the sheet on opposite sides thereof are the cracking off bars 4 and 5 of channel cross section provided on their inner sides with the insulating strips 6, 6 and resistance ribbons 7, 7. These bars are carried by the frames 8, 8 supported by the cables 9, 9, passing around pulleys 10, 10, and secured at their ends to the counterweights 11, 11. The bars are moved toward each other at timed intervals to engage the sheet by solenoids, not shown, this part of the apparatus being similar in general construction to that shown in the Slingluff patent heretofore referred to.

The chilling devices 12, 12 are carried by the bar 4, being supported upon brackets 13, 13 secured to the bars by the screws 12^a. The chilling devices are similar so that a description of one will suffice for both. Two devices are used, one at each edge of the sheet, as indicated in Fig. 1, to insure a more positive action, but the sheet may be satisfactorily cracked off by the use of only one device. The device includes a metal cylinder 14 (Fig. 2) secured to the bracket 13 by a pair of U-shaped clamps 15, 15 whose threaded ends extend through the bracket and are provided with the nuts 16, 16.

Mounted in the cylinder 14 is a piston 17 having a stem or rod 18 threaded through the end of the sleeve 19. Slidably mounted in the sleeve is a plunger 20 whose rear end is provided with a valve 21 normally pressed against the seat 22 by a spring 23. A spring 24 normally holds the stem 18 and sleeve 19 in retracted position so that the tip of the plunger 20 is out of contact with the sheet 1. The rear end of the sleeve 19 is supplied with water from the tank 25 (Fig. 1) through the pipe 26 provided with a regulating valve 27. The plunger 20 has a relatively loose fit in the sleeve 19, so that when the valve 21 is in open position, as shown, water will work its way down along the plunger from the cavity above the valve and thus cool the plunger.

The rear end of the cylinder 14 is supplied with air from the line 27^a (Fig. 1) and the connections 28 and 29. A valve 30 is located in the line 27, such valve being under control of the solenoid 31 and of the foot pedal 32. The connections 33, 33 supply current which may be controlled by a push button or by automatic means. The foot pedal offers an alternative method of controlling the valve, or both controls may be used depending on conditions.

After the glass has been heated by the ribbons 7, 7 along the band A, the bars 4 and 5 are caused to separate and move back to the position shown in Fig. 2. The valve 30 is now opened admitting pressure to the cylinder 14 above the piston 17 causing such piston to move down and moving the sleeve 19 down until the tip of the plunger 20 engages the glass, as shown. The wetted plunger engages the heated band A and chills it sufficiently to cause the glass to crack along the line of heating. The downward movement of the sleeve 19, after the plunger engages the glass, causes the valve 21 to open, thus permitting a small amount of water to

flow downward along the plunger which is thus wetted and cooled at each cracking off operation. The valve 30 is opened only momentarily, and after the plunger has engaged the glass and caused it to crack, the spring 24 moves the piston 17 (and with it the sleeve 19 and plunger 20) back to starting position, a hole 34 (Fig. 2) permitting the exhaust of air from the cylinder 14.

What I claim is:

1. Apparatus for cracking off sections from a forwardly moving sheet or ribbon of glass comprising means for heating the sheet transversely along the line to be cracked, a chilling tool adjacent the line of movement of the sheet and mounted for movement toward and from the sheet, so that in one position it touches the sheet on the line to be cracked, means operated by the movement of the tool to supply a fluid so as to chill the tool, and means for moving the tool.

2. Apparatus for cracking off sections from a forwardly moving sheet or ribbon of glass comprising means for heating the sheet transversely along the line to be cracked, a chilling tool adjacent the line of movement of the sheet and mounted for movement toward and from the sheet, so that in one position it touches the sheet on the line to be cracked, means operated by the movement of the tool to supply a liquid which wets the tool, and means for moving the tool.

3. Apparatus for cracking off sections from a forwardly moving sheet or ribbon of glass comprising means for heating the sheet transversely along the line to be cracked, a chilling tool adjacent the line of movement of the sheet and mounted for movement toward and from the sheet, so that in one position it touches the sheet on the line to be cracked, and fluid pressure means for giving the tool its movement toward and from the sheet.

4. Apparatus for cracking off sections from a forwardly moving sheet or ribbon of glass comprising means for heating the sheet transversely along the line to be cracked, a chilling tool adjacent the line of movement of the sheet and mounted for movement toward and from the sheet, so that in one position it touches the sheet on the line to be cracked, liquid supply means leading to the tool, a valve operated by the movement of the tool for permitting a flow of the liquid from the supply means to wet the tool, and means for moving the tool.

5. In apparatus for cracking off sections from a forwardly moving sheet or ribbon of glass comprising means for heating the sheet transversely along the line to be cracked, a chilling tool adjacent the line of movement of the sheet and mounted for movement toward and from the sheet, so that in one position it touches the sheet on the line to be cracked, liquid supply means leading to the tool, a valve operated by the movement of the tool for permitting a flow of the liquid from the supply means to wet the tool, and fluid pressure means for controlling the movement of the tool.

6. Apparatus for cracking off sections from a forwardly moving sheet or ribbon of glass comprising a bar extending transversely of the sheet provided with a heating ribbon and adapted to move with the glass during the heating operation, a chilling tool carried by the bar, and mounted for movement toward and from the sheet, so that in one position it touches the sheet on the line at which the ribbon has engaged such sheet, and means for giving the tool its movement toward and from the sheet.

In testimony whereof, I have hereunto subscribed my name this 30th day of July, 1928.

CHARLES H. WRIGHT.