

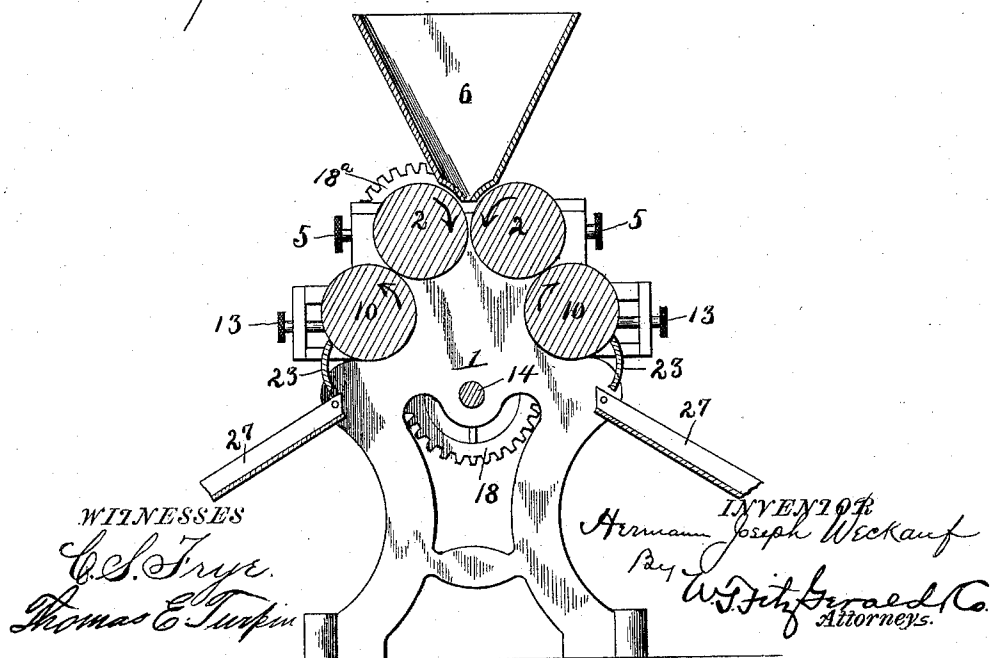
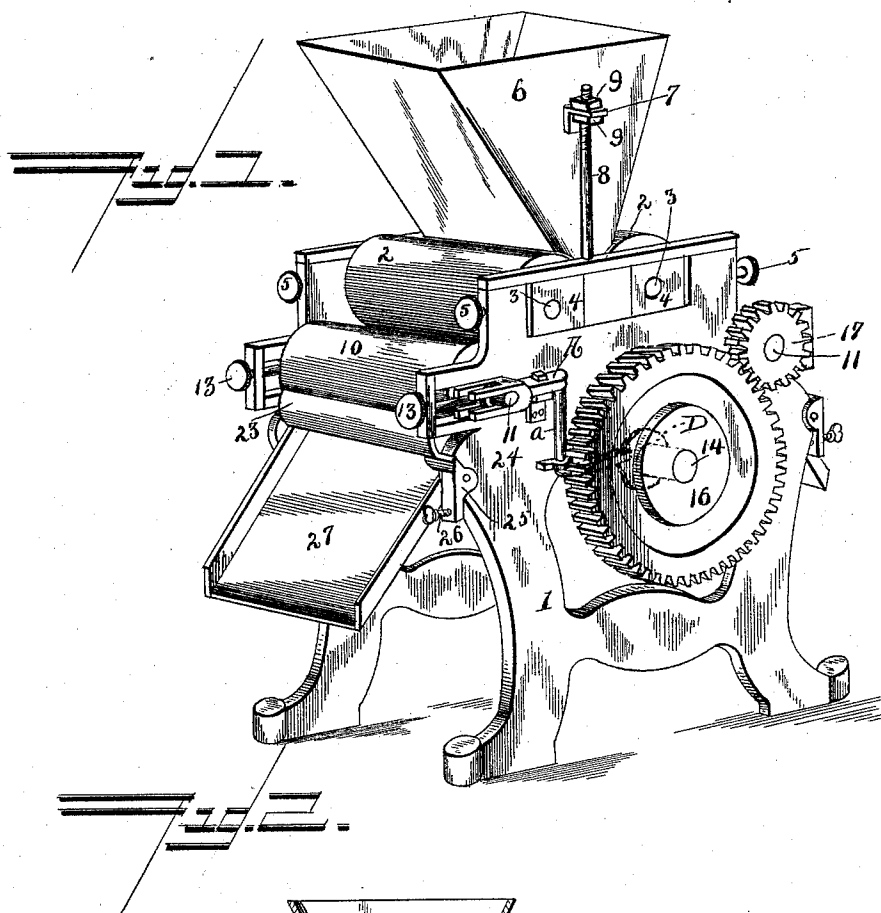
(No Model.)

2 Sheets—Sheet 1.

H. J. WECKAUF.
COLOR GRINDING MACHINE.

No. 477,722.

Patented June 28, 1892.



WITNESSES
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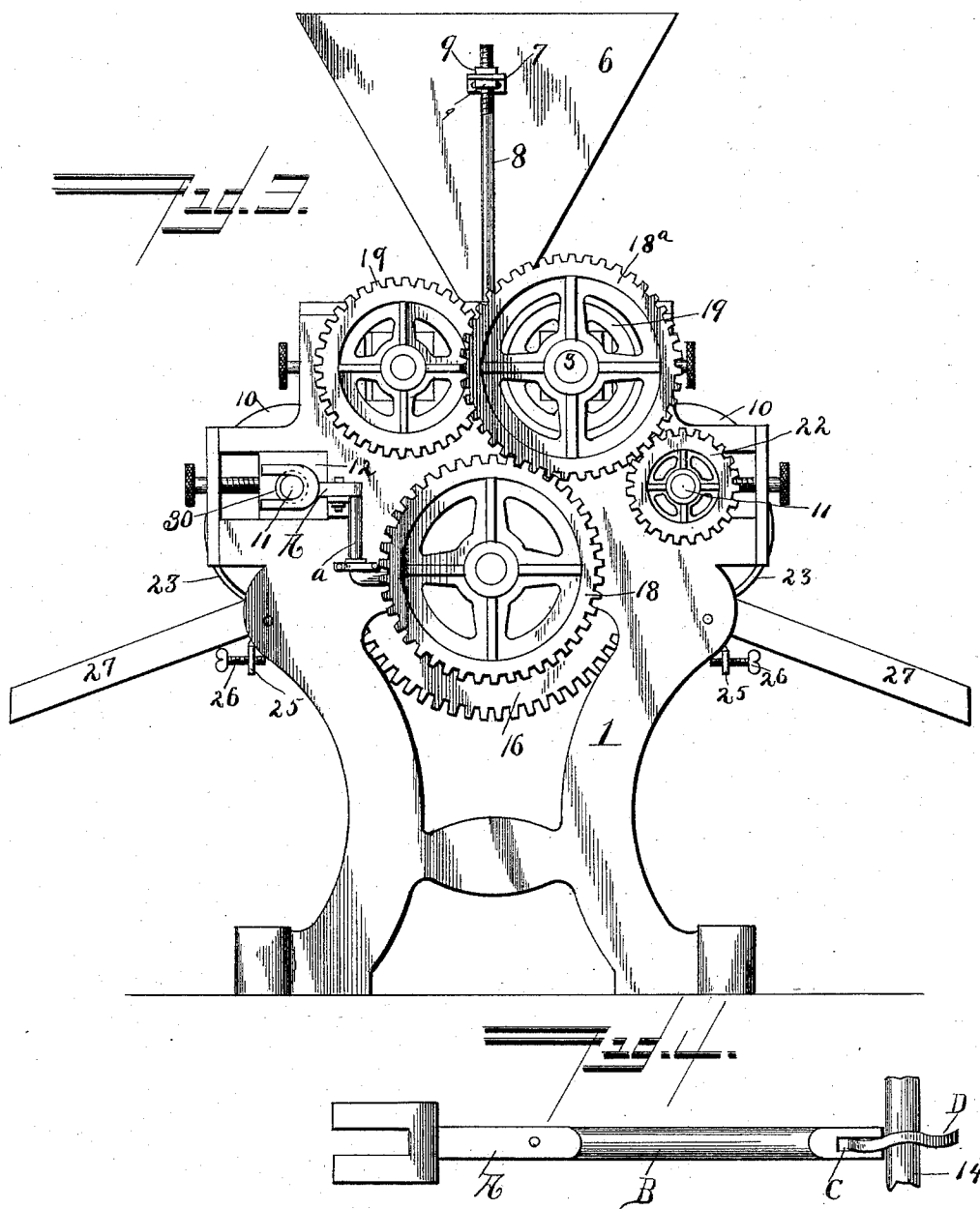
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UNITED STATES PATENT OFFICE.

HERMANN JOSEPH WECKAUF, OF RHEYDT, GERMANY.

COLOR-GRINDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 477,722, dated June 28, 1892.

Application filed October 16, 1891. Serial No. 408,963. (No model.)

To all whom it may concern:

Beitknown that I, HERMANN JOSEPH WECKAUF, a subject of the German Emperor, residing at Rheydt, in Rhenish Prussia, Empire of Germany, have invented certain new and useful Improvements in Color-Grinding Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in color-grinding machines; and it consists in the peculiar construction, certain novel combinations, and the adaptation of parts hereinafter described, and particularly pointed out in the claim appended.

Referring to the accompanying drawings, Figure 1 is a perspective view of my new and improved color-grinding machine. Fig. 2 is a central vertical sectional view of the same. Fig. 3 is a side elevation of the opposite side to that shown in Fig. 1. Fig. 4 illustrates in detail, on an enlarged scale, one of the reciprocating devices which cause the lower grinding-rollers to reciprocate laterally as they revolve, together with a portion of the drive-shaft and one of the cam-wheels.

Referring to the several parts by their designating numerals and letters, 1 indicates the supporting-frame of my new and improved color-grinding machine, in the upper part of which are mounted the two upper grinding-rollers 2 2. The ends of the shafts 3 of these rollers are mounted in bearing-blocks 4, which are adjustably mounted in the upper part of the frame 1. 5 indicates adjusting-screws, which pass horizontally through bearings in the upper part of the frame and have their inner ends swiveled in the bearing-blocks 4. It will be seen that by turning these screws 5 the grinding-rollers can be adjusted so as to regulate the distance between them, which is always very small, so that they will better grind the colors. The funnel or hopper 6, in which the color to be ground is contained, converges toward its open lower end, where it is shaped to conform to the two upper grinding-rollers. To the outer side of the hopper, near its upper end, are bolted the outwardly-extending irons 7, through which pass the upper ends of vertical rods 8 8, which rise

from the supporting-frame, and upon the threaded upper ends of these rods nuts 9 are screwed, which serve to adjust the hopper with respect to the upper rolls and hold the said hopper in position.

10 indicates the lower and outer grinding-rollers, which are mounted in the elevated position shown, the ends of their shafts 11 passing through bearing-blocks 12, which can be adjusted by means of adjusting-screws 13 in the same manner that the upper rollers are adjusted to regulate the space between the upper and lower grinding-rollers.

14 indicates the drive-shaft, which may be revolved by a belt from any suitable source of power, passing around a large band-wheel (not illustrated) on its end. Upon the same end of the drive-shaft is keyed a large cog-wheel 16, which meshes with a smaller cog-wheel 17 on that end of one of the lower roller shafts 11. On the other end of the drive-shaft is keyed a gear-wheel 18, which meshes with a gear-wheel 18^a, keyed on the end of one of the upper roller shafts 3. Keved on the upper roller shafts 3 are gear-wheels 19, which are preferably of a corresponding diameter and mesh with each other, as illustrated. The gear-wheel 18^a meshes with a pinion 22 on one of the lower roller shafts 11, as illustrated. By the arrangement of the gearing as set forth it will be readily perceived that the lower grinding-rollers 10 will be revolved at a higher rate of speed than the upper rollers 2, which is desirable for a purpose presently set forth.

Loosely mounted on the lower roller shafts 11, which are provided with collars 30, as illustrated, are the branches of the pivoted and bifurcated arms A, which are fixedly connected to or formed integral with the vertical angular branches *a* of the longitudinally-disposed shafts B, which branches *a* are journaled in bearings upon the sides of the machine. The longitudinally-disposed shafts B have their inner ends slotted, as at C, to straddle the curvilinear cam-wheels D, which are fixedly mounted upon the main drive-shaft 14, as better illustrated in Fig. 4 of the drawings. By this construction it will be readily perceived that when the main drive-shaft is rotated the longitudinal shafts B will be rocked, and through the medium of the bi-

furcated castings A and the laterally-swinging shafts B the shafts 11 of the lower grinding-rollers will be laterally reciprocated, thus facilitating the grinding of the stock. It will now be seen that the color placed in the hopper 6 will pass first to the upper grinding-rollers 2, between which it is ground, and is taken from these upper rollers by the lower grinding-rollers 10. As these lower rollers 10 revolve at a higher speed than the upper rollers and have, moreover, the longitudinal movement from side to side, they will effectively remove the ground color from the upper rollers as they come in contact with the same. As the lower rollers 10, revolving at a high rate of speed, come in contact with the upper rollers they grind the color still finer, and owing to the lateral reciprocating movement which the rollers 10 are given by the novel mechanism above described, and illustrated in detail in Fig. 4 of the drawings, the color will be ground still finer and will be more thoroughly mixed than is possible with the ordinary revolving grinding-rollers now in use. By having the two upper rollers both taking the color at the same time from the feed-hopper and the two lower rollers acting in conjunction with these upper rollers the capacity of the machine is doubled. The ground color is taken from the lower rollers 10 by the curved scraping-blades 23, which are mounted at their lower ends on the transverse pivots 24. On the ends of these shafts are secured the arms 25, formed from spring metal, through the lower ends of which pass the tension-screws 26, the inner ends of which bear against the legs of the supporting-frame. It will now be seen that by turning these tension-screws the shafts 24 will be turned in their bearings to press the beveled upper edges of the curved scraping-blades 23 against the surface of the revolving grinding-

rollers 10. Both of the rollers 10 revolve outward, and as they carry the finely-ground color from the point where they come in contact with the upper rollers the beveled upper edges of the curved scraping-blades remove the ground color from the lower rollers 10, and it then falls down into the wide shallow inclined troughs 27, from which it can be received in suitable receptacles. It will be seen that by turning the tension-screws 26 the beveled upper edges of the scraping-blades can always be kept in close contact with the lower grinding-rollers 10 and the pressure of the upper edges of the blades against the rollers can be regulated, as required. The spring-arms 25 will hold the scraping-blades with a spring-pressure against the grinding-rollers.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In a paint-grinding machine, the combination, with the drive-shaft, the curvilinear cam-wheel fixed thereon, a grinding-roller, a collar fixed on the shaft of said roller adjacent to the end thereof, and gearing intermediate of the drive-shaft and grinding-roller, adapted to transmit rotary motion from the former to the latter, of the longitudinal rock-shaft B, having its inner end slotted and straddling the curvilinear cam on the drive-shaft, the bifurcated arm A, straddling the roller-shaft and engaging the collar thereon, and the vertically-disposed branch a, journaled in suitable bearings and connecting the shaft B and arm A, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

HERMANN JOSEPH WECKAUF. [L. s.]

Witnesses:

EVANS BLAKE,
W. A. BLAKE.