Feb. 11, 1930. A. KOLITSCH 1,746,431

DRYING APPARATUS

Filed Jan. 12, 1929

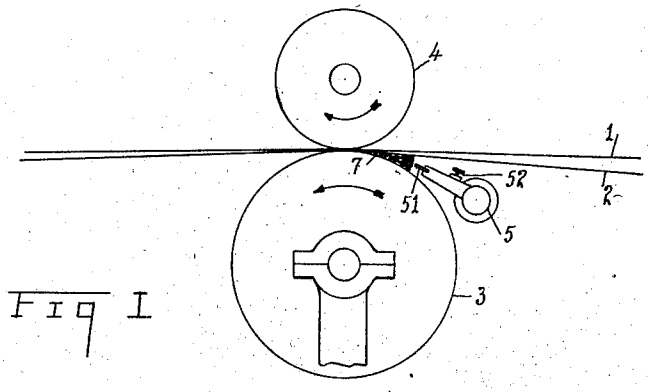


Fig 1

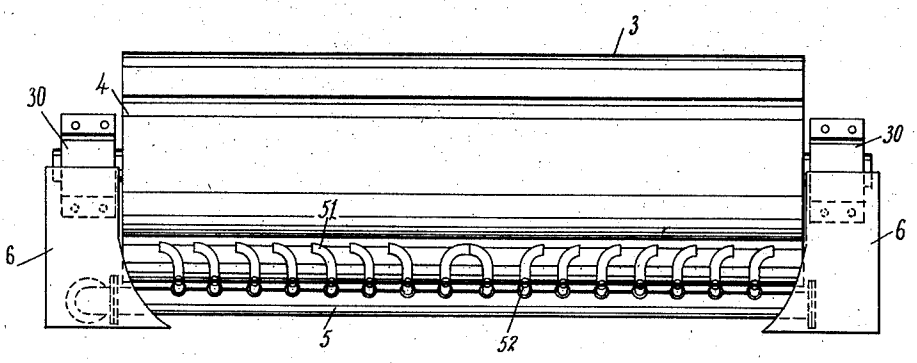


Fig 2

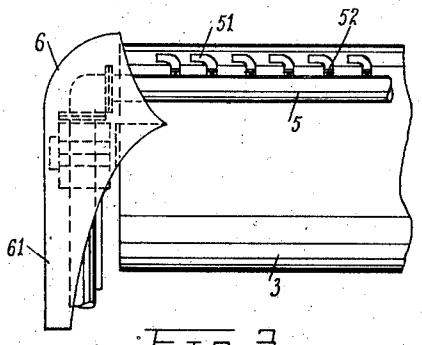


Fig 3

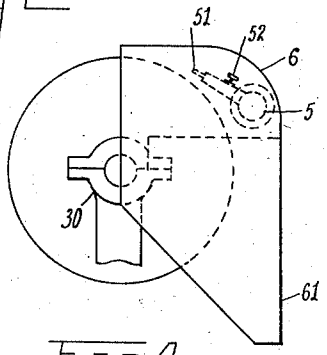


Fig 4

INVENTOR.
AUGUST KOLITSCH.

By Harding & Brooks

ATTORNEY.

Patented Feb. 11, 1930 1,746,431

UNITED STATES PATENT OFFICE

AUGUST KOLITSCH, OF PORT ALFRED, QUEBEC, CANADA

DRYING APPARATUS

Application filed January 12, 1929, Serial No. 332,170, and in Canada March 19, 1928.

This invention relates to paper making and more particularly to improvements in the drying apparatus.

The removal of the water content of the web of paper after it leaves the wire on which it is formed, is usually carried out by passing it between a series of press rolls and then a series of heated dryer rolls. The greater proportion that can be removed in the press rolls the greater the economy of steam in the dryer rolls and therefore a cheaper product.

This invention has for its object to increase the efficiency of the press rolls and the felts which carry the web of paper through them, and to decrease the number of dryer rolls required to complete the drying operation.

When the web of newly formed paper is carried by a felt to the first press roll it contains a large proportion of water. When they arrive at the nip where the pressure between the upper and lower rolls squeezes some of the water out of the web of paper, this water forms a continuous layer across the felt as it passes between the rolls. As this layer of water cannot pass between the rolls and as it is being increased in quantity continuously, its removal will greatly assist the operation of the press roll and the dryness of the felt.

The means I employ to remove a large amount of this layer of water consists of a series of high pressure air jets from a manifold connected with a pressure pump.

These jets are so directed that they blow the layer of water away to either side of the roll. A suitable hood at each side receives the spray and conducts it to the pit below. The jets are provided with control valves whereby the operation can be adjusted to various conditions in the manufacture of paper of different conditions.

Reference is made to the accompanying drawings in which:—

Fig. 1. shows a side view of a press roll with apparatus in position.

Fig. 2. shows a plan view with felt removed.

Fig. 3. shows side view of hood.

Fig. 4. shows end view of hood.

The press roll 3, journalled on the bearings 30, has the upper roll 4, mounted above it, and the felt 2, carrying the web of paper 1, passes between the rolls 3, and 4, which are adjusted to exert a high pressure on the moisture ladened web 1. The water is squeezed out of the web and through the felt and forms a layer 7, across the surface of the roll 3.

A manifold 5, with a series of jets 51, extends across the machine parallel to the roll 3, with the jets 51, arranged to blow the layer of water 7, formed in the nip, transversely from the center outwards, when high pressure air is supplied to the manifold 5. The jets 51, directed to either side transversely of the web are provided with control valves 52, whereby the amount of air can be adjusted to the particular requirements of the paper being manufactured.

In order to trap the spray formed when the jets 51, are blowing the water of the layer 7, to the sides of the roll, hoods 6, are provided with funnels 61, which receive the spray and water and conduct it to suitable receptacles.

While I have shown one form of apparatus to remove the layer of water in the nip of a press roll, I do not restrict my patent to the particular means disclosed, but to the removal of this layer of water by air pressure.

By the rapid removal of the layer of water at the nip of the felt and the press rolls the speed of the water removal is thereby accelerated and the efficiency of the rolls is increased while the felts are maintained in greatly improved condition. The latter feature is evident as the water at the nip containing stock material on being immediately removed, prevents the clogging of the felt by that material. The lower side of the felt is maintained in a higher state of efficiency by its increased porosity and the life of the felt is therefore increased.

What I claim is:—

1. In a paper machine the combination of press rolls, and a felt adapted to carry a web of paper between the rolls with means to remove the water squeezed into the nip of the rolls from the paper, transversely to either side.

2. In a paper machine the combination of press rolls, and a felt adapted to carry a web of paper between the rolls, with a series of high pressure air jets adapted to remove the water squeezed into the nip of the rolls from the paper, transversely to either side.

3. In a paper machine the combination of press rolls, and a felt adapted to carry a web of paper between the rolls, with a manifold and a series of high pressure transverse air jets adapted to remove the water squeezed into the nip of the rolls from the paper.

4. In a paper machine the combination of press rolls, and a felt adapted to carry a web of paper between the rolls, with a manifold and a series of high pressure transverse air jets with control valves, adapted to remove the water squeezed into the nip of the rolls from the paper.

5. In a paper machine the combination of press rolls, and a felt adapted to carry a web of paper between the rolls, with means to remove the water squeezed into the nip of the rolls from the paper transversely to either side, and hoods to receive the spray.

6. The combination of a pair of press rolls, adapted to compress a moisture ladened web, with a series of outwardly directed air jets adjacent the nip of the rolls to transversely remove the water squeezed into the nip of the rolls.

AUGUST KOLITSCH.